

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-17 are pending in the application, with claims 1 and 7 being the only independent claims. Claims 1, 2 and 7 have been amended, and new claims 13-17 have been added. No new matter is being introduced with this amendment.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Examiner Interview of December 17, 2004

Applicants appreciate the Examiner's courtesy extended to Applicants' representative at the personal interview of December 17, 2004. Applicants confirm the content of the interview to have covered a discussion of the Applicants' invention and the features which distinguished over each of U.S. Patent No. 4,648,546 to Gellert ("Gellert"), U.S. Patent No. 5,973,296 to Juliano *et al.* ("Juliano"), and U.S. Patent No. 6,305,923 to Godwin *et al.* ("Godwin") alone or in combination. Accordingly, Applicants submit claims 1-17 directed toward these features.

Objections to the Drawings

The drawings were objected to for not including the item number "112" that is mentioned in the specification on page 11, line 4. Further during the Examiner Interview, the Examiner noted that the item number "64" in FIG. 2 should properly be "84". Applicants submit herewith replacement sheets that include corrected drawings of

FIGS. 2 and 8. Accordingly, the objections to the drawings have been addressed and Applicants respectfully request that they be withdrawn.

Rejections Under 35 U.S.C. §103

Claims 1-3, 5, 7-9, and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Gellert patent in view of the Juliano patent. Claims 4, 6, 10 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Gellert and Juliano combination and further in view of the Godwin patent. Alternatively, claims 1-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Gellert patent in view of the Godwin and Juliano patents. The Examiner asserts that the Gellert patent teaches an injection molding apparatus that includes a melt distribution manifold having a wire type manifold heater. Office Action pp. 3-4. The Examiner acknowledges that the Gellert patent does not teach the use of a film heater on an exterior surface of a manifold or its characteristics. Office Action pp. 3. The Examiner asserts, *inter alia*, that the Juliano patent teaches a film heater for an injection mold nozzle, and that the Godwin patent teaches a molding system with a film heater. Office Action pp. 3-6. The Examiner states that it would have been obvious to one of ordinary skill in the art to have modified the manifold heater of Gellert by the teaching of the nozzle heater of Juliano to provide "more efficient external heating, provide better temperature control, provide increased flexibility for heater element design and allow integration of sensors." Office Action, p. 3. In the alternative, the Examiner states that "one would have been motivated" to have modified the manifold heater of Gellert by the teaching of the manifold heater of Godwin to provide "a means that provides heat in a manner that is more efficient and provides [an] appropriate amount of heat." Office Action pp. 6. Further, the Examiner

acknowledges that Godwin teaches use of film heaters on an "interior of the surface area to be heated" but that Juliano can be relied on for teaching a film heater located on an exterior surface area to be heated. Office Action pp. 6. Applicants respectfully traverse the rejection.

Neither Gellert, Juliano, nor Godwin alone or in combination teaches a planar film heating element coupled to an exterior surface of a manifold as claimed by Applicants. Gellert teaches embedding an electrical heating element (item 58) in a channel (item 56) milled in an upper surface (item 54) of a manifold. Gellert patent, col. 4, lines 39-41; FIGS. 4-6. The heating element is recessed into the manifold surface and metallurgically bonded therein "to disperse heat rapidly away from the [heating] element 58 [that] avoids the creation of hot spots along the heating element and applies the heat more uniformly along the melt passage 12". Gellert patent, col. 5, lines 29-32 and 39-45; FIG. 6. Juliano teaches a tubular heater sleeve *for sliding over* a tubular *nozzle* body, wherein a spirally wound resistive wire element (item 8 in FIG. 1, see also FIG. 2B) is replaced by a thick film tubular heater (item 40 in FIG. 2A). Juliano patent, col. 5, lines 42-46; col. 6, lines 5-8. As shown in FIG. 4, 4A and 4B, the Juliano thick film tubular heater core (item 48) is coaxially disposed about the tubular nozzle body (item 32). Juliano patent, col. 6, lines 37-47.

According to Juliano, such a nozzle heater arrangement reduces the bulkiness of the nozzle and decreases the size of the nozzle. Juliano patent, col. 1, lines 45-66. As such, Applicants do not agree that there would be motivation to one of ordinary skill in the art to modify an embedded manifold heater as disclosed in the Gellert patent with a thick film tubular nozzle heater as disclosed in the Juliano patent to arrive at the

Applicants' claimed invention. Particularly, the problem to be solved by a smaller profile tubular nozzle heater as disclosed in Juliano is not relevant to an embedded manifold heater as disclosed in Gellert.

Godwin does not cure the deficiencies of the Juliano patent, or provide motivation for combining the teachings of that reference with Gellert. The Godwin patent discloses the use of film heaters (items 63, 65, 81, 83, 203) placed within a manifold (items 64, 80, 204) on or about the manifold channels, as depicted in FIGS. 3, 7, 8 and 20. Godwin, col. 6, line 60-col. 7, line 11; col. 9, lines 41-64; col. 12, lines 46-50. Further, Godwin states that placing the film heaters in or on the manifold melt channels attempts to cure a problem in "prior art manifold heating apparatuses, [in that] a significant proportion of the heat generated by the heaters is wasted heating the entire manifold block rather than directly heating the resin flowing in a melt channel contained therein." Godwin, col. 1, lines 45-49. As such, Applicants do not agree that there would be motivation to one of ordinary skill in the art to modify a manifold heater embedded in a surface of a manifold block as shown in the Gellert patent with an internally located film heater as disclosed in the Godwin patent to arrive at the Applicants' claimed invention of a planar film heater coupled to an exterior surface of a manifold.

Further, the Examiner's alleged "recognized functional equivalence of interior and exterior film heater location" does not properly provide motivation to take the Juliano teaching of a thick film tubular nozzle heater on an outer surface of a nozzle to modify the Godwin teaching of placing a film heater within or on a melt channel for more efficient heating to arrive at the Applicants' claimed invention. Office Action p. 6. Accordingly, independent claims 1 and 7, as well as claims 2-6 and 8-12, which depend

respectively therefrom, are not disclosed or suggested by the Gellert, Juliano, or Godwin patents alone or in combination. Applicants therefore respectfully request that the rejection be withdrawn.

New Claims 13-17

New claims 13 and 14 depend from and add further features to independent claim 1 and new claims 15-17 depend from and add further features to independent claim 7. As such, each dependent claim is allowable for at least the same reasons as set forth above with respect to the independent claim.

Information Disclosure Statement

Applicants submit herewith an Information Disclosure Statement for the Examiner's consideration that did not get filed prior to the issuance of the first Office Action.


Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, appearing to read "T. Medler", with a large, stylized initial "T" that loops around.

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Amendments to the Drawings

Please replace pending Figures 2 and 8 with Figures 2 and 8 as amended on the replacement sheets submitted herewith.

Figure 2 has been amended to change item number "64" to item number --84--;
and Figure 8 has been amended to include item number --112--.